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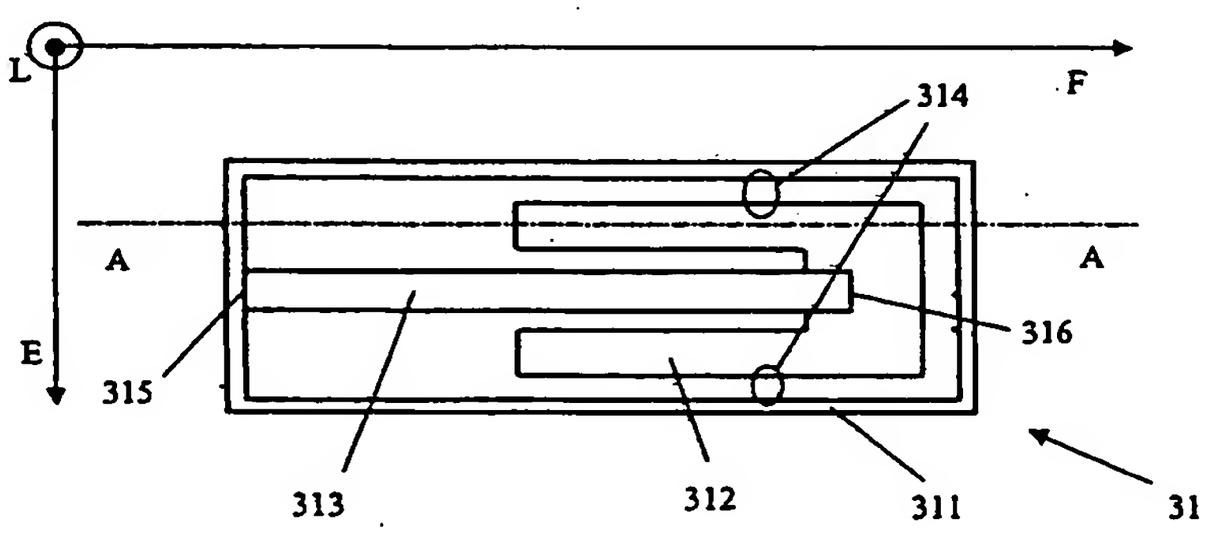
(54) Title: METHOD AND SYSTEM FOR GENERATING ELECTRICAL ENERGY WITHIN A VEHICLE TYRE



(57) Abstract: A tyre comprises a piezoelectric flexing element (313) associated to an energy storage device (e.g. a capacitor). The piezoelectric flexure element is mounted in cantilever fashion in a housing (311) so as to be positioned substantially along a plane orthogonal to a radial direction (E) of said tyre and, so that a first end (315) of the piezoelement is restrained to the housing. A loading mass (312) is coupled to the second end (316) of the piezoelectric flexure element. A small gap (314) is formed between the inner walls of the housing and the outer surface of the loading mass, in order to allow limited flexure of the piezo-electric element. The housing including the piezoelectric is mounted in a tyre portion in correspondence of a tread area of the tyre, preferably on the inner surface of the tyre. The piezoelectric element flexes under the action of the radial acceleration when the tyre rotates. The loading mass and the gap are chosen to obtain: a) small entity oscillations of the flexure element substantially during a complete revolution of the tyre, when the tyre rotates at low speed; b) large entity oscillations of the flexure element substantially only during the passage of the tyre portion including the piezoelelectric element in the contact patch. Sufficient electrical power for powering an electronic device included within the tyre is obtained, together with a long durability of the piezoelectric element.

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